

REMARKS

The Examiner is thanked for the thorough examination of the application. No newmatter is believed to be added to the application by this Amendment.

Status Of The Claims

Claims 1-3, 5-10, 23, 24, 26 and 28-30 are pending in the application. Claims 4, 11-12, 25 and 27 are canceled. The amendments to claim 1 incorporate the subject matter of canceled claim 4 and find additional support in the specification at page 5, line 11. The amendments to claim 7 find support in the specification at page 5, line 11. The amendments to claim 23 incorporate the subject matter of canceled claims 4, 25 and 27, and find additional support in the specification at page 5, line 11. Claims 28-30 find support in the specification at page 5, lines 3-12.

Rejections Based Upon Kubo

Claims 1-6 and 23-27 have been rejected under 35 U.S.C. §103(a) as being obvious over Kubo (U.S. Patent 6,295,109) in view of Song (U.S. Patent 6,091,146), Okamoto (U.S. Patent 6,281,952) and Moriyama (U.S. Patent 4,017,156).

Claims 7-10 have been rejected under 35 U.S.C. §103(a) as being obvious over Kubo in view of Song and Okamoto.

Claims 1-6 and 23-27 have been rejected under 35 U.S.C. §103(a) as being obvious over Kubo in view of Stupp (U.S. Patent 5,929,463), Okamoto and Moriyama.

Claims 7-10 have been rejected under 35 U.S.C. §103(a) as being obvious over Kubo in view of Stupp and Okamoto.

Applicant traverses all of the aforesaid rejections and respectfully requests reconsideration and withdrawal thereof.

The present invention pertains to a transmission-reflective type liquid crystal display device that, as is typically set forth in claim 1, includes a novel combination of elements of a first transparent substrate; a second transparent substrate; a liquid crystal layer between the first transparent substrate and the second transparent substrate; a linear polarizer on the second transparent substrate; a cholesteric liquid crystal polarizer on an outer side of the first transparent substrate, the cholesteric liquid crystal polarizer including a right handed helical cholesteric liquid crystal having a range of pitch values of $(380\text{nm}-800\text{nm})/n$, where n is an average index of refraction of the cholesteric liquid crystal; and a reflecting film on an inner side of the first transparent substrate adjacent to the liquid crystal layer, the reflecting film functioning as a pixel electrode and defining a light-transmitting region, wherein said light transmitting region is disposed between an inner edge of a gate line and a side of an outer edge periphery of said reflecting film in each pixel, an opposing side of said reflecting film entirely overlapping an adjacent gate line.

Kubo pertains to an LCD having pixels with reflective and transmissive regions. The Examiner points to Figures 2, 3 and 21 of Kubo, which show polarizers 6, 9, quarter wave plates 7, 10, substrates 1, 2, transmissive electrode 4, reflective/transmissive electrode regions 3, 8 and a liquid crystal layer 5.

At page 4 , lines 8-17 of the Office Action (and at page 10, line 14 t page 11, line 4), the Examiner unequivocally admits to some of the failures of Kubo, including 1) the failure to disclose a light transmitting region between an inner edge of a gate line and a side of the outer edge periphery of the reflecting film in each pixel, such that the opposite side entirely overlaps an adjacent gate line (*Cf.* independent claims 1, 7 and 23 of the present invention); and 2) the failure to disclose a circular polarizer made of cholesteric liquid crystal polarizer including a right handed pitch (*Cf.* independent claims 1 and 23 of the present invention).

It is additionally noted that Kubo fails to disclose a reflecting film functioning as a pixel electrode (*Cf.* independent claims 1, 7 and 23 of the present invention).

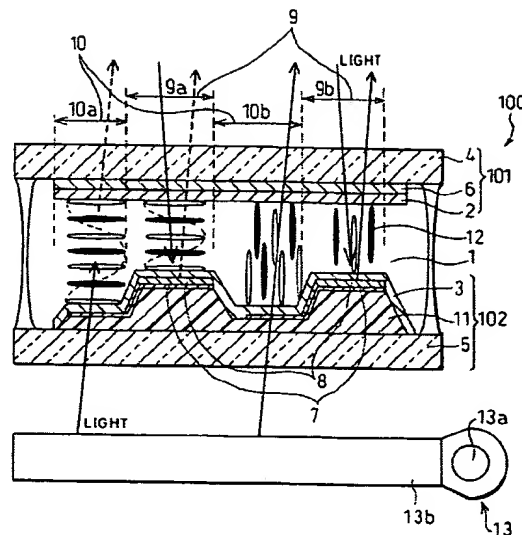
The Examiner turns to Figures 1 and 2 of Song, which show a gate line 10 and a partially overlapped portion of the pixel electrode 30 that serves a a storage capacitor 70. At page 4, line 18 to page 5, line 7 of the Office Action (see also page 7, line 18 to page 8, line 6), the Examiner asserts that is would be obvious to one of ordinary skill to further modify the configuration so that the side of the pixel electrode entirely overlaps the the adjacent gate line in order to maximize the capacitance. However, although Song may teach overlapping, there is no teaching or suggestion of entirely overlapping the adjacent gate line, as is set forth in independent claims 1, 7 and 23 of the present invention.

Similary, the Examiner turns to Figure 1 of Stupp (*see* page 11, lines 5-12 and page 14, lines 4-11 of the Office Action), which shows a gate line 12 and a partially overlapped portion of the pixel electrode 10 that serves a a storage capacitor. However, analogous to Song, there is no teaching or suggestion of entirely overlapping the adjacent gate line, as is set forth in independent claims 1, 7 and 23 of the present invention.

The Examiner turns to Moriyama at column 1, lines 1-14 for a discussion pertaining to a right handed helical cholesteric liquid crystal film having a range of pitch values (Office Action at page 5, lines 11-17 and page 11, line 16 to page 12, line 2) . However, this discussion in Moriyama is directed at the liquid crystal film 4 located at the center of the cell to make the image display possible (*see* Moriyama at column 2, lines 57-61). This cell geometry and function is fundamentally different from that of claims 1 and 23 of the present invention, where the cholesteric liquid crystal polarizer on an outer side of the first transparent substrate.

Also, the Examiner fails to point out where in Moriyama the teaching or suggestion of of pitch values of 380nm-800nm/n resides. At page 5, lines 15-17 Moriyama typically asserts: "Since the display device is conventionally worked or performed with the visible light, which as a wavelength of $\lambda=380\text{nm}-800\text{nm}$ for clear and bright color have a hogh purity of the wavelength, therefore, improving visual effect." However, there is no teaching or suggestion of pitch values of 380nm-800nm/n in Moriyama.

At page 8, lines 7-9 of the Office Action (*see also* page 14, lines 12-24), the Examiner turns to Okamoto at column 14, lines 45-49, which discusses that a reflection film 8 may also serve as an electrode. However, Figure 1 of Okamoto (reproduced below) shows that the reflection film 8 is formed directly over electrodes 7 such that adjacent electrodes 7 would be connected.



As a result, this discussion in Okamoto (if used) would yield a display where adjacent pixel areas are incapable of having different on/off states, and different adjacent on/off states are clearly shown in Figure 1 of Okamoto.

Therefore, any combination of Kubo with the secondary references of Song, Stupp, Okamoto and Moriyama would fail to motivate one of ordinary skill in the art to produce each and every recitation found in independent claims 1, 7 and 23. A *prima facie* case of obviousness has thus not been made. Claims depending upon claims 1, 7 and 23 are patentable for at least the above reasons.

These rejections are overcome and withdrawal thereof is respectfully requested.

Foreign Priority

The Examiner has acknowledged perfection of foreign priority at page 2, lines 9-12 of the Office Action mailed October 3, 2005.

The Drawings

The Examiner is respectfully requested to indicate whether the drawing figures are acceptable in the next official action.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert E. Goozner (Reg. No. 42,593), at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Application No. 09/559,403
Amendment dated July 24, 2006
Reply to Office Action of February 23, 2006

Docket No.: 0465-0711P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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